CROCODILUS SIAMENSIS.

By Malcolm A. Smith. F.Z.S.

With 3 plates.

Crocodilus siamensis was erected by Schneider in 1801, on a skull brought to Europe by the French missionaries to Siam. Mouhot later obtained a young specimen in Cambodia, which is now in the British Museum, and it is also known by one or two specimens from Java. These appear to be the only known records of this creature.

In publishing a list of the crocodiles, chelonians and lizards of Siam in this Journal three years ago, I stated that *C. palustris* Lesson, the Indian "mugger", was an inhabitant of the country, basing my statement upon some juveniles and a dried skin. I have since examined a large number of specimens, both alive and dead, and have discovered my error. The inland or fresh-water crocodile of Siam is *C. siamensis*, and, as I shall presently endeavour to show, *C. palustris* does not exist in the country at all.

Most of the characters which distinguish *C. siamensis* from its allies, *C. palustris* and *porosus*, have already been enumerated, but I propose now to review them in greater detail, and to add some others which have so far escaped observation.

*The head**. 17 or 18 upper teeth on each side, 4 teeth in each praemaxillary ; 15 lower teeth on each side, the mandibular symphysis extending to the fourth tooth.

Snout from once and two-thirds to once and five-sixths as long as broad at the base ; interorbital breadth greater than the vertical diameter of the orbit ; a thick, fairly distinct curved ridge, present in most specimens, extending from the anterior extremity of the orbit for a short distance ; interorbital ridge, much narrower than the praeorbital, commencing from in front of a line drawn through the middle of the orbit, and extending to a line drawn across its posterior extremities ; in some examples it is very poorly developed. Praemaxillo-maxillary suture on the palate directed backwards.

The integument. One or two pairs of postoccipital scutes. Four large nuchals in a square with a smaller one on each side. Dorsal

*The changes which take place in the skull during growth are considerable, and the proportions given here apply to adults only, or at least half-grown individuals.

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shield formed by 16 or 17 transverse, and 4 or 6 longitudinal, series of bony scutes, which are joined to each other in a transverse series, as in *C. palustris*, by suture. In the arrangement of the shields upon the under surface of the body these two species also resemble each other, but differ from *C. porosus*, in that, across the pectoral region, there is a single row of much enlarged scutes (Pl. 6, fig. A.), the shields forming this series being from two to three times as large as those of the adjacent rows. In the diagnosis of juvenile specimens this character is very useful.

The feet. A rudiment of a web between the inner four fingers. Web between the toes much shorter than in *C. palustris* or *porosus*. I have no examples of *C. palustris* suitable for examination, but Mr. Boulenger has kindly examined spirit specimens for me in the British Museum and writes that there is not much difference in palmation between it and *porosus*; in both the web between the 3rd and 4th toes reaches practically the extremity, but it is rather more deeply notched between the 2nd and 3rd toes in *palustris*. In *siamensis* the web between the 3rd and 4th toes does not reach the extremity, while between the 2nd and 3rd toes it barely reaches the 2nd joint of the latter.

This shortness in the web of the toes of *C. siamensis*, as compared with that of *C. porosus*, is well known to the people of Siam, and is commonly used by them to differentiate between the two species, "takhé tin kai" the fowl-footed crocodile, being used for the former, and "takhé tin pet" the duck-footed crocodile, for the latter. Their application of this knowledge, however, is by no means certain, and when confronted with the creature, they are seldom in agreement as to which kind they are actually dealing with.

Dimensions. The largest individual I have actually measured was 3.50 metres in length, and I have never seen any which appeared much bigger, although many that were quite as big. The skull of what seems to be an aged individual in my possession, is no longer than that of the above mentioned example, and 3.50 to 4 metres probably represents the average maximum length of this species. The tail constitutes approximately one half of the total length.

Distribution. Indo-China, Siam, ? the Malay Peninsula, Java.

In Central Siam, upon the Me Yome, Me Ping, and the Prasak rivers, it is still fairly common, although large numbers have been shot by Europeans of recent years. In Northern Siam it appears to be

unknown, although I am informed that a large crocodile was shot on the upper Me Yome, some distance north of Prae, two years ago. On the upper reaches of the Me Kong it does not appear to exist, but further south on that river is well known. I have a skull from Kemarat, lat. 16°. In the peninsula of Siam it is not uncommon in swamps in the neighbourhood of Chumporn, and it is again to be found at the northern extremity of the Talé Sap, near Singgora.

A fresh-water crocodile is also recorded from the following localities, and is probably referable to this species.

Robinson and Annandale (Fascic. Malay, 1904, p. 148) report one as common on the upper reaches of the Patani river. South of this there is no direct evidence of the existence of any fresh-water crocodile in the Malay Peninsula.

On the Quaa Noi river, near Sai Yoke, W. Siam, a crocodile is reported as being common.

Last year whilst travelling on the Lang Bian plateau, S. Annam, Monsieur Millet, Conservator of Forests to the French Government, informed me that crocodiles in large numbers existed there in a small lake at Tak-Lak, elevation of about 1000 metres. They wer- also plentiful in several large swamps in southern Cambodia.

Habits. The Siamese Crocodile is essentially a fresh-water ine habitant, haunting by preference slow-moving streams with muddy banks. Not far north of Paknampo, C. Siam, they have lived for years in the borrow-pits beside the railway embankment, and have become so accustomed to the daily service of trains that they make no attempt to move away when they pass by. At the end of the rainy season, when the whole country is flooded, they are said to disappear, returning again as the waters dry up. Their reason for preferring these pits, in preference to the main river which is not more than a few hundred yards away, is due no doubt to the absence of molestation by passing boats, and also to the greater ease of obtaining food. For the same reason they prefer swamps wherever they are to be found in the vicinity of rivers.

The Siamese Crocodile does not appear to be a particularly aggressive creature. I have never heard of any grown person being attacked by it, although I am told that small children are sometimes seized. The country people certainly seem to have little fear of

them, and do not hesitate to bathe in the waters known to be inhabited by these creatures. They say that as long as they have plenty of fish to eat they will not attack human beings. In captivity their disposition is variable. Some that I have kept have refused all food. Others fed freely on flesh of every kind, and soon learned to come to the side of the tank and take it.

The flesh of this crocodile is eaten by the country people, while that of *C. porosus* is not.

Breeding. Eggs are laid during the rainy season. They have the usual hard, white shell, and are from 75 to 80 mm. long by 50 broad. I have had young ones hatched out in August. When born they were about 250 mm. in total length. They had no teeth at first, but these appeared after some ten days. They were very lively, and snapped fiercely when any attempt was made to handle them.

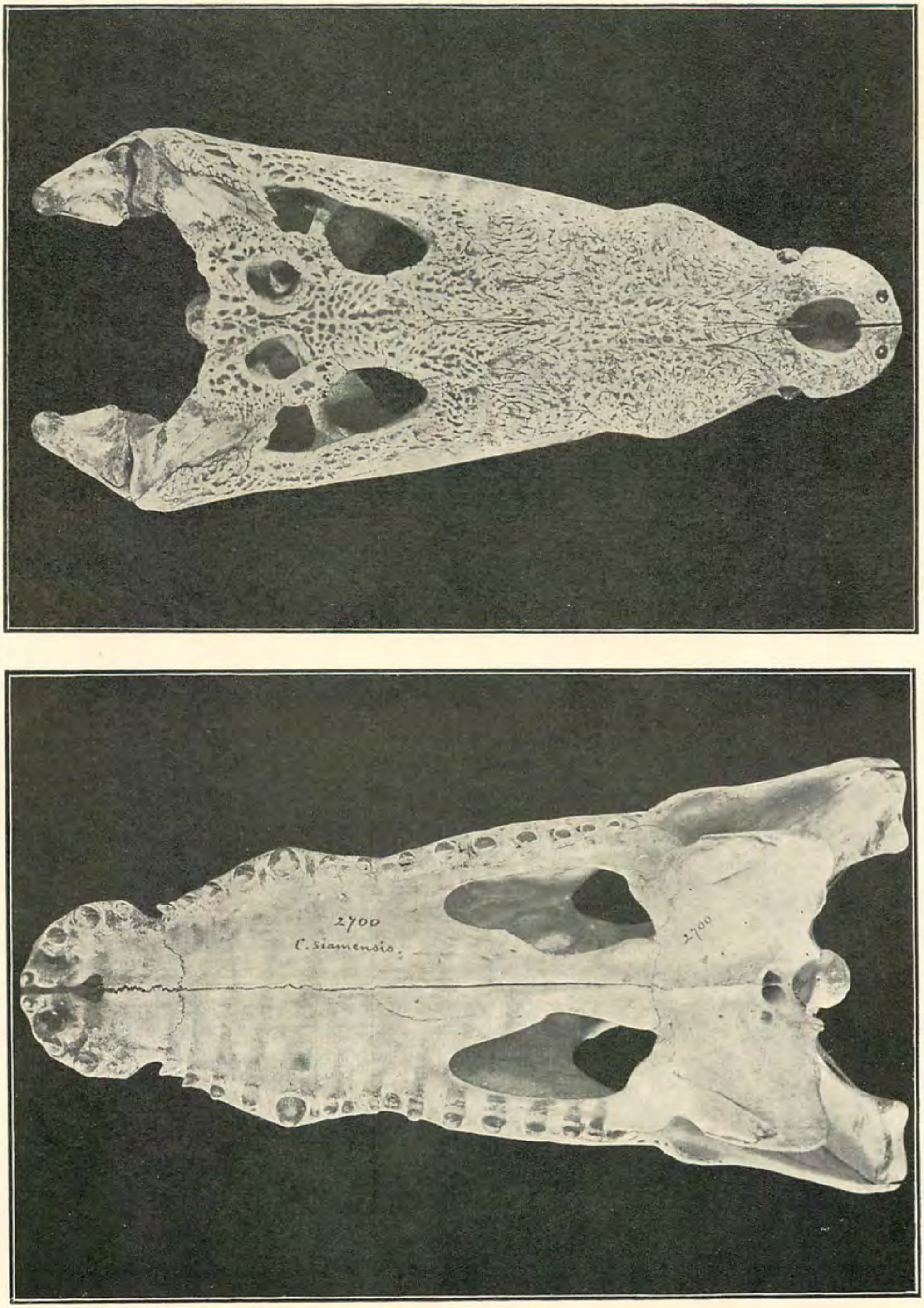
In studying the distribution of *C. siamensis* I have naturally been led to enquire into the exact habitat of its close ally *C. palustris.* This is recorded as India, Ceylon, Burma, the Malay Peninsula and Java; and, if this were correct, one might certainly also expect to find it in Siam.

After carefully examining a large number of crocodiles from various part of Siam, I am convinced that it does not occur anywhere in that country. Nor does there appear to be any reliable evidence that it occurs either in Burma or the Malay Peninsula. Neither the British Museum, the Indian Museum, the Museum of the Bombay Natural History Society nor the F. M. S. Museums, possess specimens from those countries, nor can the authorities of those institutions tell me of any ever having been obtained there. That a fresh-water crocodile exists in Burma is evident from the testimony of eye witnesses who have lived there, but whether it is *palustris* or *siamensis*, stilll remains to be shewn.

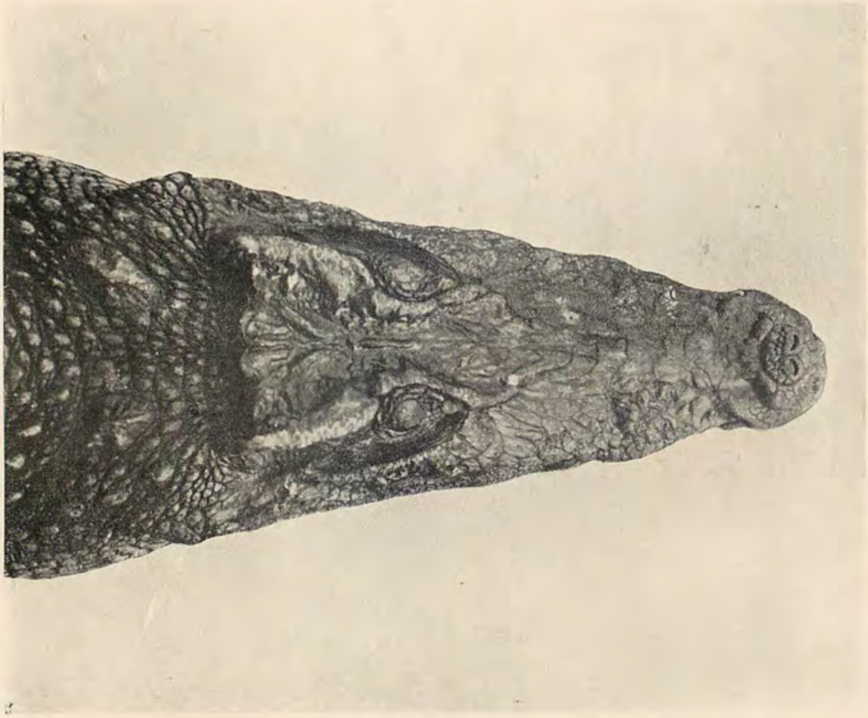
The fresh-water crocodile of the upper part of the Malay Peninsula is almost certainly *C. siamensis.* In fact this form appears to replace *palustris* east of the Indian or Indo-Burmese region. The occurrence of both species therefore in Java, as recorded, is of particular interest.

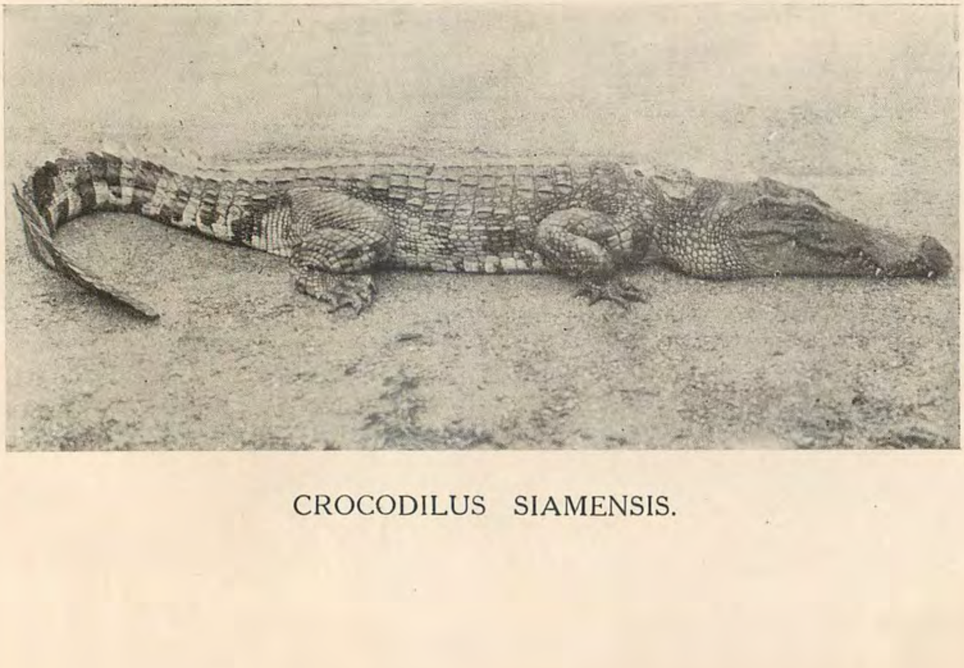
LIST OF SPECIMENS OF *Crocodilus siamensis* OBTAINED.

No.	Locality.	Specimen.	Collected by
2699	Utaradit, C. Siam.	Adult, skull.	W. A. R. Wood.
2700	Paknampo, ,,	,, ,,	M. A. Smith.
2701	Kemarat, Cambodia.	,, ,,	E. Seidenfaden.
2878	Paknampo, C. Siam.	$\frac{1}{4}$ grown, in spirit.	W. Mabert.
3037	,, ,,	Half-grown, stuffed.	,,
3038	,, ,,	,, ,,	,,
3039	,, ,,	$\frac{1}{4}$ grown, ,,	S. Ross Greene.
3040	,, ,,	Young ad., flat skin.	M. A. Smith.
3041	,, ,,	$\frac{1}{4}$ grown, stuffed.	S. Ross Green.
3042	,, ,,	Juv., flat skin.	,,
3043	,, ,,	,, ,,	,,
3044	Chumporn, P. Siam.	,, stuffed.	C. D. Switzer.
3078	,, ,,	,, skin and skull.	,,
3080	Pak Klong, Talé Sap, P. Siam.	Young ad., stuffed.	Arthur Gibb.
3703	Paknampo, C. Siam.	New born, in spirit.	S. Ross Green.
3704	Pitsanuloke, ,,	Young, ,,	M. R. Suwabarn Sanitwongse.
3705	Chumporn, P. Siam.	,, ,,	O. C. Daniell.



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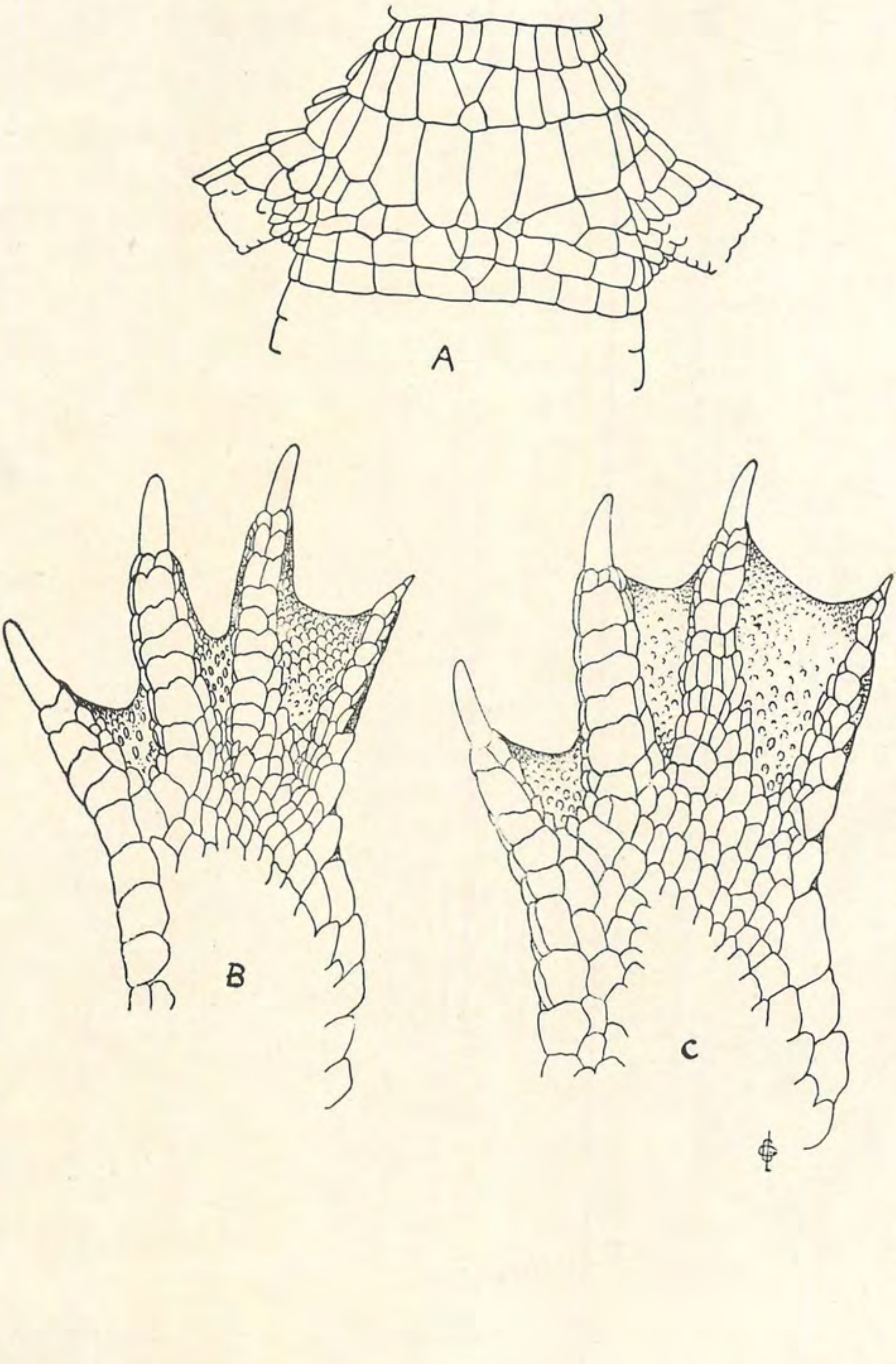
CROCODILUS SIAMENSIS.

EXPLANATION OF PLATE 6.

A. Pectoral shields of *C. siamensis*.

B. Hind foot of *C. siamensis*.

C. Hind foot of *C. porosus*.


A
B
C